DEPARTMENT of ENVIRONMENTAL SERVICES Water Supply & Pollution Control Division - Biology Bureau

LAKE TROPHIC DATA

MORPHOMETRIC:

Lake: MANNING LAKE		Lake Area (ha):	81.58
Town: GILMANTO	N	Maximum depth (m):	16.4
County: Belknap		Mean depth (m):	6.1
River Basin: Merrimac		Volume (m³):	4951000
Latitude: 43°28'38		Relative depth:	1.6
Longitude: 71°20'29)'' W	Shore configuration:	1.31
	715	Areal water load (m/yr): 9.55
Shore length (m):	4200	Flushing rate (yr ⁻¹):	1.60
Watershed area (ha):		P retention coeff.:	0.56
% watershed ponded:	0.6	Lake type:	natural

BIOLOGICAL:	8 January 1998	20 August 1997
DOM. PHYTOPLANKTON (% TOTAL) #1	UROGLENOPSIS 30%	TABELLARIA 27%
#2	DINOBRYON 25%	CHRYSOSPHAERELLA 25%
#3	ASTERIONELLA 15%	RHIZOSOLENIA 22%
PHYTOPLANKTON ABUNDANCE (units/mL)		
CHLOROPHYLL-A (µg/L)		4.53
DOM. ZOOPLANKTON (% TOTAL) #1	CALANOID COPEPOD 25%	KELLICOTTIA 26%
#2	NAUPLIUS LARVA 23%	KERATELLA 16%
#3	ROTIFER SPP 12%	ASPLANCHNA 12%
ROTIFERS/LITER	18	72
MICROCRUSTACEA/LITER	31	26
ZOOPLANKTON ABUNDANCE (#/L)	52	100
VASCULAR PLANT ABUNDANCE		Scat/Common
SECCHI DISK TRANSPARENCY (m)		6.0
BOTTOM DISSOLVED OXYGEN (mg/L)	11.9	1.6
BACTERIA (E. coli, #/100 ml) #1		2
#2		< 1
#3		

SUMMER THERMAL STRATIFICATION:

stratified

Depth of thermocline (m): 7.5
Hypolimnion volume (m³): 227000
Anoxic volume (m³): None

CHEMICAL:			MANNING I		
	8 January 1998 20		20 <i>I</i>	August 1997	
DEPTH (m)	6.0	12.0	3.0	10.0	14.5
pH (units)	6.6	6.4	7.0	6.5	6.2
A.N.C. (Alkalinity)	3.5	3.8	3.8	3.9	8.0
NITRATE NITROGEN	< 0.05	< 0.05	< 0.05		< 0.05
TOTAL KJELDAHL NITROGEN	0.20	0.20	0.20	0.20	0.40
TOTAL PHOSPHORUS	0.007	0.007	0.001	0.006	0.007
CONDUCTIVITY (µmhos/cm)	26.5	26.5	23.8	23.7	29.4
APPARENT COLOR (cpu)	15	15	12	15	35
MAGNESIUM			0.37		
CALCIUM			2.1		
SODIUM			1.4		
POTASSIUM			0.32		
CHLORIDE	< 2	< 2	< 2		< 2
SULFATE	4	4	4		3
TN : TP	29	29	200		57
CALCITE SATURATION INDEX			3.4		

All results in mg/L unless indicated otherwise

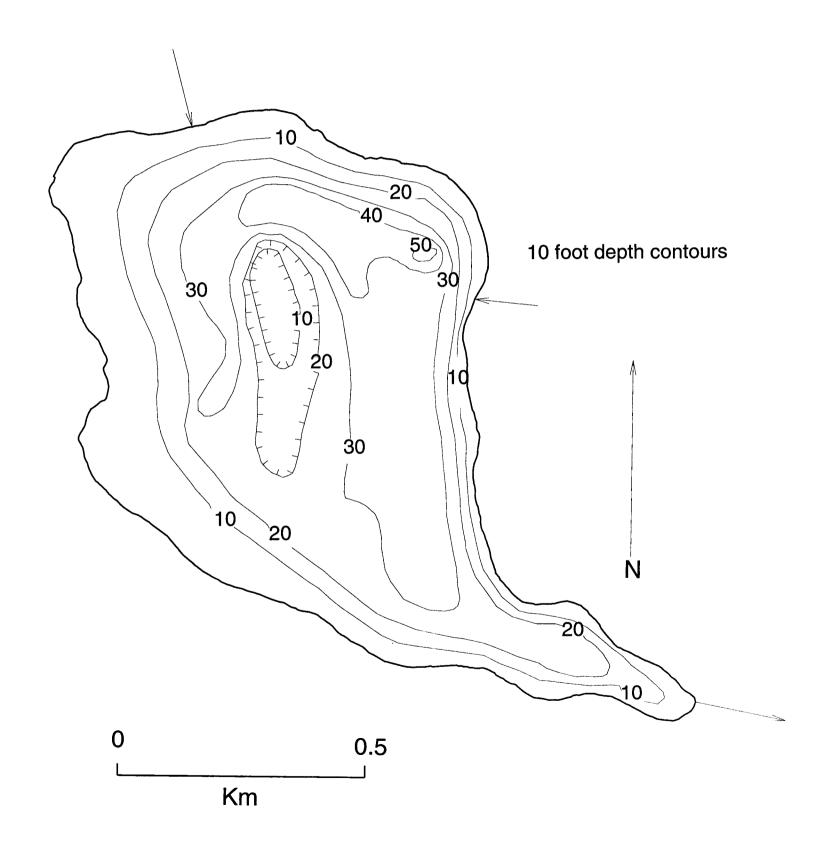
TROPHIC CLASSIFICATION: 1997

D.O.	S.D.	PLANT	CHL	TOTAL	CLASS
1	1	2	1	5	Oligo.

COMMENTS:

- 1. Formerly called Guinea Pond.
- 2. This lake was previously surveyed in 1982 and was also classified oligotrophic at that time. The major difference in water quality between the two dates was in the bottom dissolved oxygen. In 1982 the D.O. was approximately 5 mg/L at a bottom depth of 14 meters. In 1997 a deeper depth was sampled, and the D.O. dropped below 1 mg/L at 13 meters (with a slight increase at the very bottom).
- 3. Shallow boat launch but adequate parking and no restrictions.
- 4. This is a clear, nutrient poor, oligotrophic lake with low conductivity.

Manning Lake Gilmanton



FIELD DATA SHEET

LAKE: MANNING LAKE TOWN: GILMANTON DATE: 08/20/97 WEATHER: SUNNY & CLEAR; CALM

DEPTH (M)	TEMP (°C)	*DISSOLVED OXYGEN	OXYGEN SATURATION
0.1	22.9	7.9	89 %
1.0	22.8	7.9	89 %
2.0	22.8	7.9	89 %
3.0	22.7	7.8	88 %
4.0	22.7	7.8	88 %
5.0	22.6	7.7	87 %
6.0	22.5	7.8	88 %
7.0	22.1	8.0	92 %
8.0	16.9	10.2	103 %
9.0	14.0	10.1	98 %
10.0	12.3	4.5	41 %
11.0	11.1	3.3	30 %
12.0	10.2	1.5	13 %
12.0 13.0 14.0	9.3	0.8	7 %
14.0	8.6	0.9	7 %
15.0	8.2	1.1	9 %
16.0	7.9	1.6	13 %
L		1	

SECCHI DISK (m): 6.0

 $\begin{tabular}{ll} \textbf{COMMENTS:} & \textbf{The slight rise in dissolved oxygen} \\ \end{tabular}$

BOTTOM DEPTH (m): 16.4 at the very bottom of the lake was apparently due to photosynthesis by bottom plant growth in this very

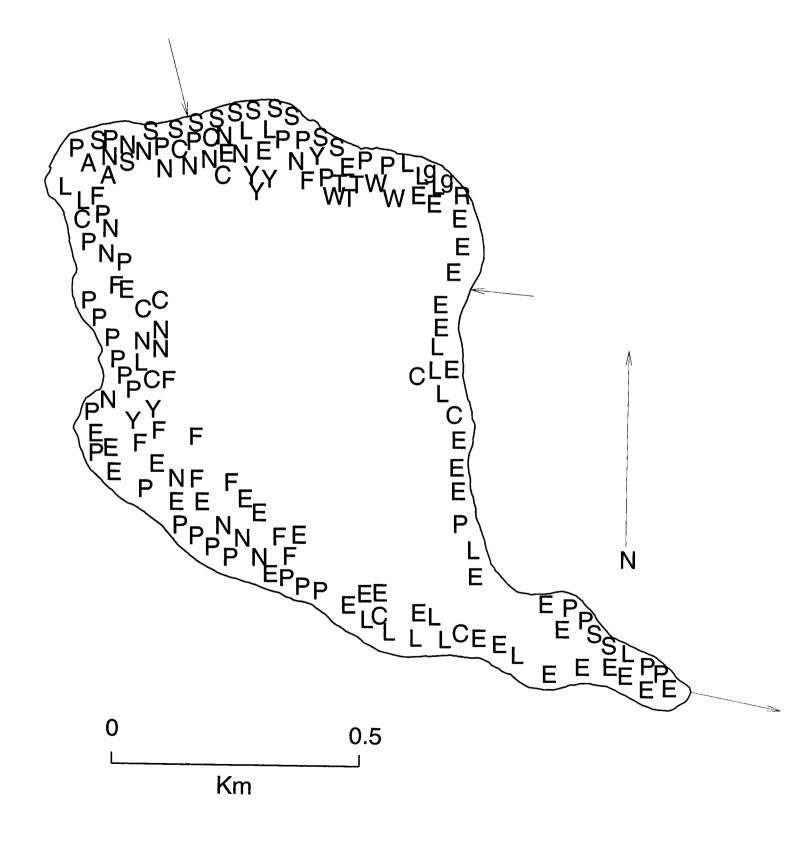
TIME: 1000

clear lake.

*Dissolved oxygen values are in mg/L

Manning Lake

Gilmanton



AQUATIC PLANT SURVEY

LAK	E: MANNING LAKE	TOWN: GILMANTON I	DATE: 08/20/97			
Vorr	PLANT	NAME	ADUNDANCE			
Key	GENERIC	COMMON	ABUNDANCE			
P	Pontederia cordata	Pickerelweed	Scattered			
S	Sparganium	Bur reed	Scattered			
N	Nymphaea	White water lily	Scattered			
A	Sagittaria	Arrowhead	Sparse			
L	Lobelia dortmanna	Water lobelia	Scattered			
С	Cyperaceae	Non-flowering sedge	Sparse			
F	Nymphoides cordatum	Floating heart	Sparse			
E	Eriocaulon septangulare	Pipewort	Scattered			
Y	Nuphar	Yellow water lily	Sparse			
Т	Typha	Cattail	Sparse			
W	Potamogeton	Pondweed	Sparse			
g	Gratiola lutea f. pusilla	Dwarf hyssop	Sparse			
R	Lobelia cardinalis	Cardinal flower	Sparse			
		·				
11	OVERALL ARIBIDANCE, Cont./Common					

OVERALL ABUNDANCE: Scat/Common

GENERAL OBSERVATIONS:

- 1. Pipewort was present around most of the shoreline, as it was in the 1982 survey.
- 2. Plants appeared to be somewhat more abundant in 1997 as compared to 1982.
- 3. Two ducks, one turkey vulture and a great blue heron were observed.